



DEPARTMENT OF REGULATORY AND ECONOMIC RESOURCES (RER)
BOARD AND CODE ADMINISTRATION DIVISION

NOTICE OF ACCEPTANCE (NOA)

**MIAMI-DADE COUNTY
PRODUCT CONTROL SECTION**

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DURO-LAST Roofing, Inc.
525 Morley Drive
Saginaw, MI 48601

SCOPE:

This NOA is being issued under the applicable rules and regulations governing the use of construction materials. The documentation submitted has been reviewed and accepted by Miami-Dade County RER - Product Control Section to be used in Miami Dade County and other areas where allowed by the Authority Having Jurisdiction (AHJ).

This NOA shall not be valid after the expiration date stated below. The Miami-Dade County Product Control Section (In Miami Dade County) and/or the AHJ (in areas other than Miami Dade County) reserve the right to have this product or material tested for quality assurance purposes. If this product or material fails to perform in the accepted manner, the manufacturer will incur the expense of such testing and the AHJ may immediately revoke, modify, or suspend the use of such product or material within their jurisdiction. RER reserves the right to revoke this acceptance, if it is determined by Miami-Dade County Product Control Section that this product or material fails to meet the requirements of the applicable building code.

This product is approved as described herein, and has been designed to comply with the Florida Building Code including the High Velocity Hurricane Zone of the Florida Building Code.

DESCRIPTION: DURO-LAST Single Ply PVC Roof Systems over Concrete Decks.

LABELING: Each unit shall bear a permanent label with the manufacturer's name or logo, city, state and following statement: "Miami-Dade County Product Control Approved", unless otherwise noted herein.

RENEWAL of this NOA shall be considered after a renewal application has been filed and there has been no change in the applicable building code negatively affecting the performance of this product.

TERMINATION of this NOA will occur after the expiration date or if there has been a revision or change in the materials, use, and/or manufacture of the product or process. Misuse of this NOA as an endorsement of any product, for sales, advertising or any other purposes shall automatically terminate this NOA. Failure to comply with any section of this NOA shall be cause for termination and removal of NOA.

ADVERTISEMENT: The NOA number preceded by the words Miami-Dade County, Florida, and followed by the expiration date may be displayed in advertising literature. If any portion of the NOA is displayed, then it shall be done in its entirety.

INSPECTION: A copy of this entire NOA shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This NOA revises NOA No. 12-0516.13 and consists of pages 1 through 26.

The submitted documentation was reviewed by Jorge L. Acebo.



NOA No.: 12-0529.05
Expiration Date: 08/22/17
Approval Date: 03/07/13
Page 1 of 26

ROOFING SYSTEM APPROVAL

Category: Roofing
Sub-Category: Single Ply
Material: PVC
Deck Type: Concrete
Maximum Design Pressure -247.5 psf

TRADE NAMES OF PRODUCTS MANUFACTURED OR LABELED BY APPLICANT:

TABLE 1

<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Duro-Last Membrane	.037" thick, fabricated in sheets up to 3000 sq. ft.	ASTM D 4434	PVC polymer blend polyester reinforced roofing membrane: white, tan or gray.
Duro-Last Membrane	.045" thick, fabricated in sheets up to 2000 sq. ft.	ASTM D 4434	PVC polymer blend polyester reinforced roofing membrane: white, tan or gray.
Duro-Last Membrane	.057" thick, fabricated in sheets up to 1800 sq. ft.	ASTM D 4434	PVC polymer blend polyester reinforced roofing membrane: white, tan or gray.
Duro-Last Duro-Fleece Membrane	.047" thick, fabricated in sheets up to 2000 sq. ft.	ASTM D 4434	PVC polymer blend polyester reinforced fleece backed roofing membrane.
Duro-Last Duro-Fleece Membrane	.056" thick, fabricated in sheets up to 1800 sq. ft.	ASTM D 4434	PVC polymer blend polyester reinforced fleece backed roofing membrane.
Duro-Last Fascia Bar	1 ¾" x 10'; 4" x 10'		Extruded vinyl drip edge with holes punched 8" o.c..
Duro-Last Fascia Bar Cover	1 ¾" x 10'; 4" x 10'		Extruded decorative cover for Duro-Last Fascia Bar: white, tan or gray.
Duro-Last Fascia	2" & 4"	TAS 111	Kynar finish Galvalume, 24 ga., cover
Duro-Last Snap Coping	12"	TAS 111	Kynar finish Galvalume, 24 ga., coping
Duro-Last 2-Piece Metal "T-Edge"		TAS 111	Kynar finish Galvalume, 24 ga., with vinyl skirt
Duro-Last 2-Piece Compression Edge		TAS 111	Kynar finish Galvalume, 24 ga.
Duro-Last Vinyl Coated Metal	4' x 10' .043" thick	G-90	G-90 galvanized steel, laminated with Duro-Last Vinyl Film.



<u>Product</u>	<u>Dimensions</u>	<u>Test Specification</u>	<u>Product Description</u>
Duro-Last Drip Edge	2" face x 10'; 4" face x 10';		Extruded vinyl drip edge with holes punched 8" o.c.
Duro-Last Two-Way Roof Vents			Injection molded two-way roof vents with a Duro-Last membrane skirt.
Duro-Last Gravel Stop	2" face x 10'; 4" face x 10';		Extruded vinyl gravel stop with holes punched 8" o.c.
Roof-Trak III Walk Pads	30" x 60" .125" thick		Extruded vinyl walk way pads manufactured from Duro-Last membrane.
Duro-Last WB II Adhesive	5 gal. pail		Polymeric waterborne membrane adhesive.
Duro-Last SB IV	5 gal. pail		Low VOC solvent-based membrane adhesive.
Duro-Fleece CR-20 Membrane Adhesive	40 lbs. Cylinder A 35 lbs. Cylinder B		Two-component membrane adhesive.
Duro-Last Tab Sealer 4725			Solvent-based contact-bonding agent.
Duro-Last Accessories	Various	ASTM D 4434	Custom fabricated accessories for parapets and penetrations: Curb flashing, Inside & Outside Corner, Scuppers, Drain Boot, Parapet Flashing, Stack Flashing; all for use in the Duro-Last roofing systems.

APPROVED INSULATIONS:

TABLE 2

Product Name	Product Description	Manufacturer (With Current NOA)
ACFoam II, ACFoam III, ACFoam IV	Polyisocyanurate foam insulation	Atlas Roofing Corp.
ISO 95+ GL	Polyisocyanurate foam insulation	Firestone Building Products Company, LLC
EPS	Type IX Expanded polystyrene with a minimum density of 1.8 pcf	Generic
XPS	Type IV Extruded polystyrene with a minimum density of 1.6 pcf	Generic
Type X Gypsum	Gypsum Wallboard	Generic
ENRGY-3, JM ISO 3	Polyisocyanurate foam insulation	Johns Manville
Invinsa Roof Board	High density polyisocyanurate board	Johns Manville
DensDeck	Silicon treated gypsum	Georgia-Pacific Gypsum LLC
SECUROCK Gypsum-Fiber Roof Board	Fiber reinforced insulation board	United States Gypsum Corporation
H-Shield, H-Shield CG	Polyisocyanurate foam insulation	Hunter Panels, LLC
Duro-Guard Iso II-H, Duro-Guard Iso III-H	Polyisocyanurate foam insulation	Duro-Last Roofing, Inc.
Duro-Guard Iso II-A, Duro-Guard Iso III-A, Duro-Guard Iso IV-A	Polyisocyanurate foam insulation	Duro-Last Roofing, Inc.
Multi-Max FA-3	Polyisocyanurate foam insulation	Rmax Operating, LLC
Insulfoam EPS	Polystyrene roof board insulation	Insulfoam LLC



APPROVED FASTENERS:**TABLE 3**

Fastener Number	Product Name	Product Description	Dimensions	Manufacturer (With Current NOA)
1.	Duro-Last Duro-Coated Hex Head Screws	Roofing and insulation fasteners, Duro-Coated with #3 Phillips head.	Various Lengths	Duro-Last Roofing, Inc.
2.	Duro-Last 3" Metal Plates	Galvalume steel stress plates.	3" square	Duro-Last Roofing, Inc.
3.	Duro-Last Insulation Plates	Round plastic stress plates.	3" round	Duro-Last Roofing, Inc.
4.	Duro-Last Poly-plates	Round plastic stress plates.	2" round	Duro-Last Roofing, Inc.
5.	Duro-Last #14 Concrete Screws	Corrosion resistant, drill point fastener with #3 Phillips head.	Various Lengths	Duro-Last Roofing, Inc.
6.	Duro-Last Fluted Concrete Nails	Corrosion resistant, 0.22" shank with a flat top pan head.	Various Lengths	Duro-Last Roofing, Inc.
7.	Duro-Last Cleat Plate	0.035" thick galvalume stress plates.	2.4"	Duro-Last Roofing, Inc.
8.	Eyehook Seam Plates	Stress plates	2-3/8"	OMG, Inc.
9.	Duro-Last #15 Extra Heavy Duty Drill Point Fastener	Corrosion resistant, drill point with a #3 Phillips truss head	Various Lengths	Duro-Last Roofing, Inc.
10.	Duro-Last #14 HD Fastener	Roofing and insulation fasteners, Duro-Coated with #3 Phillips head	Various Lengths	Duro-Last Roofing, Inc.
11.	Duro-Bond Plate 1302	Round, coated galvalume plate (Gold and Black)	3" round	Duro-Last Roofing, Inc.
12.	Duro-Last Batten Bar	18 ga. Galvalume steel batten bar with pre-punched holes every 6"	1" wide	Duro-Last Roofing, Inc.

EVIDENCE SUBMITTED:

<u>Test Agency/Identifier</u>	<u>Name</u>	<u>Report</u>	<u>Date</u>
Factory Mutual Research Corporation	J.I. 2M4A8 .AM	Class 4470	03-05-87
	J.I. 3Y5A6.AM	Class 4470	03-10-95
	J.I. 1X2A7 .AM	Class 4470	08-90-99
	3005604	Class 4470	03-13-00
	3008342	Class 4470	10-19-00
	3023458	Class 4450	06-18-06
	3026128	Class 4450	08-04-06
	3026508	Class 4470	05-03-07
	3006989	Class 4470	02-09-01
	3015816	Class 4470	01-09-03
	3010289	Class 4470	04-13-01
	3014929	Class 4470	05-23-03
	3010987	Class 4470	04-23-02
	3032172	Class 4470	06-12-09
	3040346	Class 4470	09-28-11
	3014692	Class 4470	08-05-03
	3040741	Class 4470	10-17-11
Exterior Research & Design, LLC	02733.01.05-1	FM 4470/TAS 114	01-21-05
	02744.05.06	FM 4470/TAS 114	05-17-06
	02732.09.04	ASTM D4434	09-28-04
Trinity ERD	02750.02.08-R2	ASTM D4434 / AC75	08-03-12
	D42370.07.12	ASTM D1084 / TAS 117	07-11-12
	D35210.08.11-R1	ASTM D4434	09-17-12
	D6760.08.07	FM 4470 / TAS 114	08-01-07
	D42320.08.12	FM 4470 / TAS 114	08-31-12
Intertek Testing Services, NA Inc.	3119586-001	TAS 111	07-10-07



APPROVED ASSEMBLIES:

Membrane Type:	Single Ply, PVC
Deck Type 3I:	Concrete Decks, Insulated
Deck Description:	2500-psi structural concrete
System Type A(1):	All Layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Insulfoam EPS Minimum 2" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
DensDeck Minimum 1/4" thick	N/A	N/A

Note: Layers of insulation shall be adhered with OlyBond 500 applied in ribbons spaced 12-inch. o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane:	Duro-Last membrane fully adhered to top insulation layer with Duro-Last WB II Adhesive at a minimum rate of 0.7 gal/sq. Laps are sealed with a minimum 1.5" wide heat weld.
Maximum Design Pressure:	-45 psf (See General Limitation #9)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type A(2): All Layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ISO 95+ GL Minimum 2" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board Minimum 1/4" thick	N/A	N/A

Note: All insulation shall be adhered to the deck with Pliodeck Insulation Adhesive in 3/4 in. ribbons spaced at 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: Duro-Last membrane or Duro-Last Duro-Fleece membrane fully adhered to top insulation layer with Duro-Last WB II Adhesive at a minimum rate of 100 ft²/gal. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -217.5 psf (See General Limitation #9)



Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type A(3): All Layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam-IV, Duro-Guard Iso IV-A Minimum 2" thick	N/A	N/A
Multi-Max FA-3 Minimum 1.5" thick	N/A	N/A
ACFoam-III, Duro-Guard Iso III-A Minimum 1.3" thick	N/A	N/A
ISO 95+ GL, H-Shield, H-Shield CG, JM ISO 3, ENRGY-3, Duro-Guard Iso II-H, Duro-Guard Iso III-H Minimum 1" thick	N/A	N/A

Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board Minimum 1/4" thick	N/A	N/A

Note: All insulation shall be adhered with Duro-Fleece CR-20 Adhesive in 1.5 in. ribbons spaced at 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: Duro-Last membrane fully adhered to top insulation layer with Duro-Last WB II Adhesive at a minimum rate of 0.7 gal/sq. Laps are sealed with a minimum 1.5" wide heat weld.

Or

Duro-Last Duro-Fleece membrane adhered with Duro-Last WB II Adhesive at a minimum rate of 1.0 gal/sq. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -240 psf (See General Limitation #9)



Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type A(4): All Layers of insulation adhered with approved adhesive; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, Duro-Guard Iso II-A, H-Shield, Duro-Guard Iso II-H, ENRGY-3 Minimum 2" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board Minimum 1/4" thick	N/A	N/A

Note: All insulation shall be adhered to the deck with hot asphalt in full coverage at 25 lb/sq or Insta Stik™ Quik Set Insulation Adhesive, OlyBond 500 Adhesive Fastener, Duro-Fleece CR-20 Adhesive or Millennium One-Step Foamable Adhesive in 3/4 in. ribbons spaced at 12" o.c. Please refer to Roofing Application Standard RAS 117 for insulation attachment.

Membrane: Duro-Last membrane or Duro-Last Duro-Fleece membrane fully adhered to top insulation layer with Duro-Last WB II Adhesive at a minimum rate of 100 ft²/gal. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -247.5 psf (See General Limitation #9)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500-psi structural concrete

System Type C(1): All layers of insulation simultaneously attached, membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, Duro-Guard Iso II-A Minimum 1.5" thick	2 with 5	1:2 ft²

Note: Insulation layers shall be simultaneously attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Membrane: Duro-Last membrane fully adhered to insulation layer with Duro-Last SB IV adhesive applied at 60 ft²/gal. Laps are sealed with a minimum 1.5" wide heat weld.

**Maximum Design
Pressure:** -45 psf (See General Limitation #9)



Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500-psi structural concrete

System Type C(2): All layers of insulation simultaneously attached, membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, ACFoam III, ACFoam IV, Duro-Guard Iso II-A, Duro-Guard Iso III-A, Duro-Guard Iso IV-A, ENRGY-3, ISO 95+ GL Multi-Max FA-3		
Minimum 1-1/2" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
Invinsa Roof Board		
Minimum 1/4" thick	2 with 5	1:2 ft²

Note: Insulation layers shall be simultaneously attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density (See Roofing Application Standard RAS 117 for fastening details).

Membrane: Duro-Last membrane fully adhered to top insulation layer with Duro-Last SB IV adhesive applied at 60 ft²/gal. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -45 psf (See General Limitation #9)

Membrane Type: Single Ply, PVC
Deck Type 3I: Concrete Decks, Insulated
Deck Description: 2500-psi structural concrete

System Type C(3): Base layer of insulation loose laid, top layer of insulation mechanically fastened; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Base Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, ACFoam III, ACFoam IV, Duro-Guard Iso II-A, Duro-Guard Iso III-A, Duro-Guard Iso IV-A, ENRGY-3, ISO 95+ GL Multi-Max FA-3		
Minimum 1-1/2" thick	N/A	N/A
Top Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
SECUROCK Gypsum-Fiber Roof Board		
Minimum 1/4" thick	2 with 5	1:1.33 ft²

Note: Top layer shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Duro-Last membrane fully adhered to top insulation layer with Duro-Last SB IV Adhesive applied at 60 ft²/gal. Laps are sealed with a minimum 1.5" wide heat weld.
Maximum Design Pressure: -45 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type C(4): Base layer of insulation loose laid, top layer of insulation mechanically fastened; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
H-Shield, Duro-Guard Iso II-H Minimum 1.5" thick	10 with 11	See Below

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Insulation Layer shall be through fastened to the concrete deck with the fastener and plate listed above. The Duro-Last membrane shall be welded to the Duro-Bond Plates in the manner and the spacing specified below.

Fastening: Insulation shall be mechanically attached at 6" o.c., in rows spaced a maximum of 60" o.c. Membrane is welded to the Duro-Bond Plate 1302 with RhinoBond Welder. Laps are sealed with a minimum 1.5" wide heat weld.

**Maximum Design
Pressure:** -45 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type C(5): Base layer of insulation loose laid, top layer of insulation mechanically fastened; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
H-Shield, Duro-Guard Iso II-H Minimum 1.5" thick	10 with 11	See Below

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Insulation Layer shall be through fastened to the concrete deck with the fastener and plate listed above. The Duro-Last membrane shall be welded to the Duro-Bond Plates in the manner and the spacing specified below.

Fastening: Insulation shall be mechanically attached at 6" o.c., in rows spaced a maximum of 48" o.c. Membrane is welded to the Duro-Bond Plate 1302 with RhinoBond Welder. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -52.5 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type C(6): Base layer of insulation loose laid, top layer of insulation mechanically fastened; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
H-Shield, Duro-Guard Iso II-H Minimum 1.5" thick	10 with 11	1:2.67 ft²

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Insulation Layer shall be through fastened to the concrete deck with the fastener and plate and density listed above. The Duro-Last membrane shall be welded to the Duro-Bond Plates as specified below.

Fastening: Membrane is welded to the Duro-Bond Plate 1302 with RhinoBond Welder. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -52.5 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type C(7): Base layer of insulation loose laid, top layer of insulation mechanically fastened; membrane fully adhered.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
H-Shield, Duro-Guard Iso II-H Minimum 1.5" thick	10 with 11	1:2 ft²

Note: Insulation shall be mechanically attached with fasteners and density described above. Insulation panels listed are minimum sizes and dimensions; if larger panels are used the number of fasteners per board shall be increased maintaining the same fastener density. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Insulation Layer shall be through fastened to the concrete deck with the fastener and plate and density listed above. The Duro-Last (.057" min) membrane shall be welded to the Duro-Bond Plates as specified below.

Fastening: Membrane is welded to the Duro-Bond Plate 1302 with RhinoBond Welder. Laps are sealed with a minimum 1.5" wide heat weld.

**Maximum Design
Pressure:** -52.5 psf (See General Limitation #7)



Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type D(1): All layers of insulation are preliminarily attached to roof deck as specified below. Membrane is mechanically attached to deck through the insulation layers.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ACFoam II, Duro-Guard Iso II-A, ENRGY-3, ENRGY-3 25 PSI, H-Shield, Duro-Guard Iso II-H, Approved XPS and/or EPS		
Minimum ½" thick	1, 2, 3	1:4 ft ²
	1, 2, 3	1:6.4 ft ²

Note: Insulation layers above shall be mechanically attached with preliminary fastening as specified above. All Insulation panels shall also be mechanically fastened along with the roof membrane as specified below. See Roofing Application Standard RAS 117 for fastening details.

Vapor Barrier: (Optional) Any UL or FM approved vapor barrier.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10®, FR-50®, ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the insulation (see General Limitation #1).

Membrane with 60" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs spaced every 60" with Duro-Last fasteners and Duro-Last Poly-plates® spaced 12" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Membrane with 28" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs spaced every 28" with Duro-Last fasteners and Duro-Last Poly-plates® spaced 18" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -45 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type D(2): All layers of insulation are preliminarily attached to roof deck as specified below. Membrane is mechanically attached to deck through the insulation layers.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ACFoam II, Duro-Guard Iso II-A, ENRGY-3, ENRGY-3 25 PSI, H-Shield, Duro-Guard Iso II-H, Approved XPS and/or EPS		
Minimum ½" thick	1, 2, 3	1:4 ft ²
	1, 2, 3	1:6.4 ft ²

Note: Insulation layers above shall be mechanically attached with preliminary fastening as specified above. All Insulation panels shall also be mechanically fastened along with the roof membrane as specified below. See Roofing Application Standard RAS 117 for fastening details.

Vapor Barrier: (Optional) Any UL or FM approved vapor barrier.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10®, FR-50®, ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the insulation (see General Limitation #1).

Membrane with 28" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last #14 Concrete Screws or Duro-Last #14 Concrete Screws with Duro-Last Poly-plates® spaced 18" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Membrane with 60" tabs: Duro-Last® membrane shall be mechanically attached at its 3" tabs, spaced every 60" with Duro-Last Fluted Concrete Nails, Duro-Last #14 Concrete Screws or Duro-Last #14 Concrete Screws with Duro-Last Poly-plates® spaced 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Membrane with 120" tabs: Duro-Last® membrane shall be mechanically attached at its minimum 6" tabs spaced every 120" with Duro-Last Fluted Concrete Nails, Duro-Last #14 Concrete Screws or Duro-Last #14 Concrete Screws with Duro-Last Poly-plates® spaced at 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -52.5 psf (see General Limitation #7)



Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type D(3): All layers of insulation are preliminarily attached to roof deck as specified below. Membrane is mechanically attached to deck through the insulation layers.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, Duro-Guard Iso II-A, H-Shield, Duro-Guard Iso II-H, ISO 95 +GL, Multi-Max FA-3 Minimum 1.5" thick	4, 9	1:6.4 ft²

Note: Insulation layers above shall be mechanically attached with preliminary fastening as specified above. All Insulation panels shall also be mechanically fastened along with the roof membrane as specified below. See Roofing Application Standard RAS 117 for fastening details.

Membrane: Duro-Last membrane shall be mechanically attached at its 3" tabs spaced every 60" with Duro-Last #14 Concrete Screw or Duro-Last Fluted Concrete Nails with Duro-Last Batten Bar spaced 6" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -67.5 psf (See General Limitation #7)

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type D(4): All layers of insulation are preliminarily attached to roof deck as specified below. Membrane is mechanically attached to deck through the insulation layers.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer	Insulation Fasteners (Table 3)	Fastener Density/ft ²
ACFoam II, Duro-Guard Iso II-A, ENRGY-3, H-Shield, Duro-Guard Iso II-H, Approved XPS and/or EPS Minimum ½" thick	1, 2, 3 1, 2, 3	1:4 ft ² 1:6.4 ft ²

Note: Insulation layers above shall be mechanically attached with preliminary fastening as specified above. All Insulation panels shall also be mechanically fastened along with the roof membrane as specified below. See Roofing Application Standard RAS 117 for fastening details.

Vapor Barrier: (Optional) Any UL or FM approved vapor barrier.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10®, FR-50®, ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the insulation (see General Limitation #1).

Membrane with 28" tabs: Duro-Last membrane shall be mechanically attached at its 3" tabs, spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws or Duro-Last #14Concrete Screws and Duro-Last Poly-plates spaced 12" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -75 psf; See General Limitation #7)

Duro-Last membrane shall be mechanically attached at its 3" tabs, spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws, Duro-Last #14Concrete Screws and Duro-Last Poly-plates spaced 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -105 psf; See General Limitation #7)

Maximum Design Pressure: See fastening above

Membrane Type: Single Ply, PVC

Deck Type 3I: Concrete Decks, Insulated

Deck Description: 2500-psi structural concrete

System Type D(5): Membrane fastened over preliminarily fastened insulation. All layers of insulation and membrane simultaneously attached.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

One or more layers of any of the following insulations.

Insulation Layer (Optional)	Insulation Fasteners (Table 3)	Fastener Density/ft²
ACFoam II, ACFoam III, Duro-Guard Iso II-A, Duro-Guard Iso III-A, ENRGY-3, H-Shield, Duro-Guard Iso II-H, Any Approved XPS and/or EPS Minimum 1½" thick	N/A	N/A

Note: Insulation layer above shall be mechanically attached with preliminary fastening. All Insulation panels shall be mechanically fastened along with the roof membrane as specified below. See Roofing Application Standard RAS 117 for fastening details.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10®, FR-50®, ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the insulation (see General Limitation #1).

Membrane with 25" tabs: Duro-Last membrane shall be mechanically attached at its 6" wide tabs, spaced every 25" o.c. with Duro-Last #14Concrete Screws or Duro-Last Fluted Concrete Nails with 2-3/8" Eyehook Seam Plates or Duro-Last Cleat Plates spaced 6" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.
(Maximum Design Pressure -142.5 psf; See General Limitation #7)

Membrane with 57" tabs: Duro-Last membrane shall be mechanically attached at its 6" wide tabs, spaced every 57" o.c. with Duro-Last #14Concrete Screws or Duro-Last Fluted Concrete Nails with Duro-Last 3-inch Metal Plates spaced 12" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.
(Maximum Design Pressure -52.5 psf; See General Limitation #7)

Duro-Last membrane shall be mechanically attached at its 6" wide tabs, spaced every 57" o.c. with Duro-Last #14 Concrete Screws or Duro-Last Fluted Concrete Nails with Duro-Last 3-inch Metal Plates spaced 6" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -105 psf; See General Limitation #7)

Membrane with 84" tabs: Duro-Last membrane shall be mechanically attached at its 3" wide tabs, spaced every 84" o.c. with Duro-Last #14 Concrete Screws or Duro-Last Fluted Concrete Nails with Duro-Last Poly-plates spaced 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -45 psf; See General Limitation #7)

Duro-Last membrane shall be mechanically attached at its 6" wide tabs, spaced every 84" o.c. with Duro-Last #14 Concrete Screws or Duro-Last Fluted Concrete Nails with Duro-Last 3-inch Metal Plates spaced 6" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -52.5 psf; See General Limitation #7)

Duro-Last membrane shall be mechanically attached at its 3" wide tabs, spaced every 84" o.c. with Duro-Last #14 Concrete Screws or Duro-Last Fluted Concrete Nails with 2-3/8" Eyehook Seam Plates or Duro-Last Cleat Plates spaced 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -60 psf; See General Limitation #7)

Membrane with 120" tabs: Duro-Last membrane shall be mechanically attached at its 6" wide tabs, spaced every 120" o.c. with Duro-Last #14 Concrete Screws or Duro-Last Fluted Concrete Nails with Duro-Last 3-inch Metal Plates spaced 6" o.c. maximum, through the insulation and into the deck. Duro-Last Tab Sealer 4725 shall be applied over the tab membrane and to the overlying membrane underside at a rate of 60 ft²/gal (two-sided application). Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -82.5 psf; See General Limitation #7)

Maximum Design
Pressure:

See fastening above

Membrane Type: Single Ply, PVC
Deck Type 3: Concrete Decks, Non-Insulated
Deck Description: 2500-psi structural concrete
System Type E(1): Membrane mechanically attached to roof deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Vapor Barrier: (Optional) Any UL or FM approved vapor barrier.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10[®], FR-50[®], ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the deck (see General Limitation #1).

Membrane with 28" tabs: Duro-Last[®] membrane shall be mechanically attached at its 3" tabs spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws or Duro-Last #14Concrete Screws with Duro-Last Poly-plates[®] spaced 18" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Membrane with 60" tabs: Duro-Last[®] membrane shall be mechanically attached at its 3" tabs spaced every 60" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws or Duro-Last #14Concrete Screws with Duro-Last Poly-plates[®] spaced 6" o.c. maximum, through the insulation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Membrane with 120" tabs: Duro-Last[®] membrane shall be mechanically attached at its minimum 6" tabs spaced every 120" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws or Duro-Last #14Concrete Screws with Duro-Last Poly-plates[®] spaced at 6" o.c. maximum through the installation and into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

Maximum Design Pressure: -52.5 psf (see General Limitation #7)

Membrane Type: Single Ply, PVC
Deck Type 3: Concrete Decks, Non-Insulated
Deck Description: 2500-psi structural concrete
System Type E(2): Membrane mechanically attached to roof deck.

All General and System Limitations apply. Roof accessories not listed in Table 1 of this NOA are not approved and shall not be installed unless said accessories demonstrate compliance with prescriptive Florida Building Code requirements and are field fabricated utilizing the approved membranes listed in Table 1.

Vapor Barrier: (Optional) Any UL or FM approved vapor barrier.

Fire Barrier: (Optional) Atlas Roofing Corporation FR-10[®], FR-50[®], ¼" DensDeck, ½" thick UL Classification Type X Gypsum with a moisture resistant facer and core or a second sheet of barrier board may be used over the deck (see General Limitation #1).

Membrane with 28" tabs: Duro-Last membrane shall be mechanically attached at its 3" tabs, spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last #14Concrete Screws or Duro-Last #14Concrete Screws and Duro-Last Poly-plates spaced 12" o.c. maximum, into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -75 psf; See General Limitation #7)

Duro-Last membrane shall be mechanically attached at its 3" tabs, spaced every 28" with Duro-Last Fluted Concrete Nails, Duro-Last#14Concrete Screws or Duro-Last #14Concrete Screws and Duro-Last Poly-plates spaced 6" o.c. maximum, into the deck. Laps are sealed with a minimum 1.5" wide heat weld.

(Maximum Design Pressure -105 psf; See General Limitation #7)

Maximum Design Pressure: See fastening above

CONCRETE DECK SYSTEM LIMITATIONS:

1. If mechanical attachment to the structural deck through the lightweight insulating concrete is proposed, a field withdrawal resistance testing shall be performed to determine equivalent or enhanced fastener patterns and density. All testing and fastening design shall be in compliance with Testing Application Standard TAS 105 and Roofing Application Standard RAS 117 and/or RAS 137, calculations shall be signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant.

GENERAL LIMITATIONS:

1. Fire classification is not part of this acceptance, refer to a current Approved Roofing Materials Directory for fire ratings of this product.
2. Insulation may be installed in multiple layers. The first layer shall be attached in compliance with Product Control Approval guidelines. All other layers shall be adhered in a full mopping of approved asphalt applied within the EVT range and at a rate of 20-40 lbs./sq., or mechanically attached using the fastening pattern of the top layer
3. All standard panel sizes are acceptable for mechanical attachment. When applied in approved asphalt, panel size shall be 4' x 4' maximum.
4. An overlay and/or recovery board insulation panel is required on all applications over closed cell foam insulations when the base sheet is fully mopped. If no recovery board is used the base sheet shall be applied using spot mopping with approved asphalt, 12" diameter circles, 24" o.c.; or strip mopped 8" ribbons in three rows, one at each sidelap and one down the center of the sheet allowing a continuous area of ventilation. Encircling of the strips is not acceptable. A 6" break shall be placed every 12' in each ribbon to allow cross ventilation. Asphalt application of either system shall be at a minimum rate of 12 lbs./sq.

Note: Spot attached systems shall be limited to a maximum design pressure of -45 psf.

5. Fastener spacing for insulation attachment is based on a Minimum Characteristic Force (F') value of 275 lbf., as tested in compliance with Testing Application Standard TAS 105. If the fastener value, as field-tested, are below 275 lbf. insulation attachment shall not be acceptable.
6. Fastener spacing for mechanical attachment of anchor/base sheet or membrane attachment is based on a minimum fastener resistance value in conjunction with the maximum design value listed within a specific system. Should the fastener resistance be less than that required, as determined by the Building Official, a revised fastener spacing, prepared, signed and sealed by a Florida Registered Engineer, Architect, or Registered Roof Consultant may be submitted. Said revised fastener spacing shall utilize the withdrawal resistance value taken from Testing Application Standards TAS 105 and calculations in compliance with Roofing Application Standard RAS 117.
7. Perimeter and corner areas shall comply with the enhanced uplift pressure requirements of these areas. Fastener densities shall be increased for both insulation and base sheet as calculated in compliance with Roofing Application Standard RAS 117 and/or RAS 137. Calculations prepared, signed and sealed by a Florida registered Professional Engineer, Registered Architect, or Registered Roof Consultant **(When this limitation is specifically referred within this NOA, General Limitation #9 will not be applicable.)**
8. All attachment and sizing of perimeter nailers, metal profile, and/or flashing termination designs shall conform with Roofing Application Standard RAS 111 and applicable wind load requirements.
9. The maximum designed pressure limitation listed shall be applicable to all roof pressure zones (i.e. field, perimeters, and corners). Neither rational analysis, nor extrapolation shall be permitted for enhanced fastening at enhanced pressure zones (i.e. perimeters, extended corners and corners). **(When this limitation is specifically referred within this NOA, General Limitation #7 will not be applicable.)**
10. All products listed herein shall have a quality assurance audit in accordance with the Florida Building Code and Rule 9N-3 of the Florida Administrative Code.

END OF THIS ACCEPTANCE



NOA No.: 12-0529.05
Expiration Date: 08/22/17
Approval Date: 03/07/13
Page 26 of 26